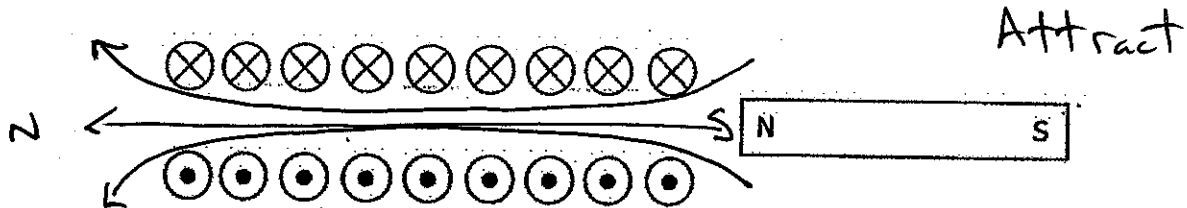
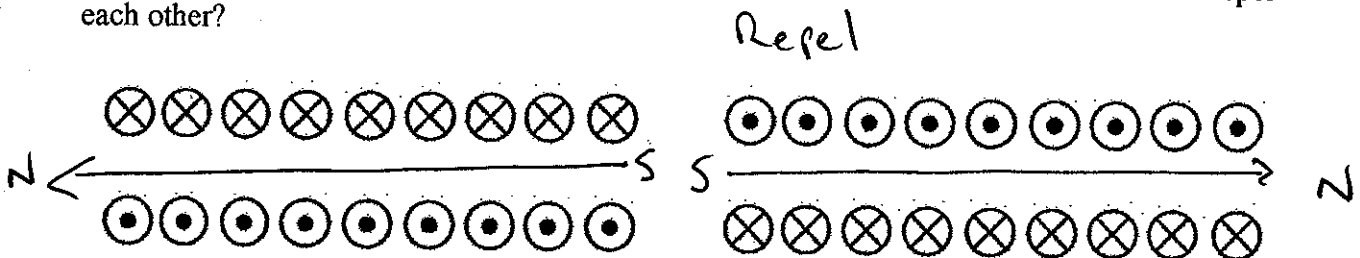


Magnetic Fields Worksheet

1. A solenoid is shown below near a bar magnet. Draw the magnetic field lines for the solenoid. Will the solenoid and the bar magnet attract or repel each other?



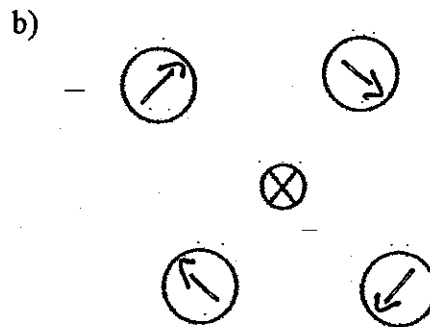
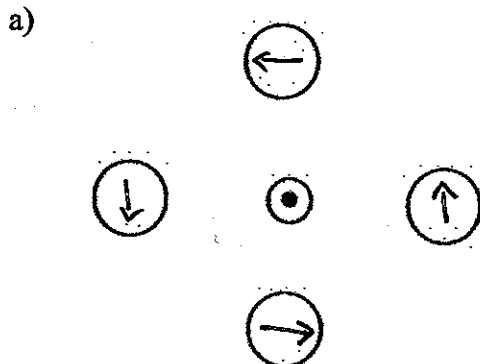
2. Two solenoids are placed side by side as shown below. Will the solenoids attract or repel each other?



3. The following are ways in which the operation of an electromagnet can be changed. Indicate whether the change will produce a stronger magnetic field or a weaker field.

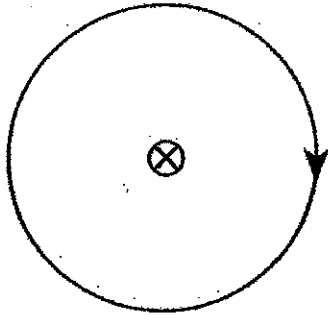
- a) Removing the iron core from the solenoid. *Weaker*
- b) Increasing the number of coils of wire. *Stronger*
- c) Decreasing the amount of current flowing through the solenoid. *Weaker*

4. A wire is aligned so that it is straight and comes out of the page. The wire is at the center of the diagram and each circle around the wire represents a compass. Indicate the direction of the compass needle in each circle.

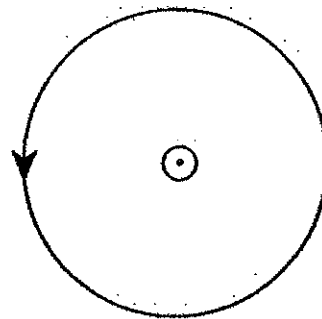


5. Each empty circle represents a conductor surrounded by a magnetic field. State whether a dot of an "X" should be placed in each circle.

a)

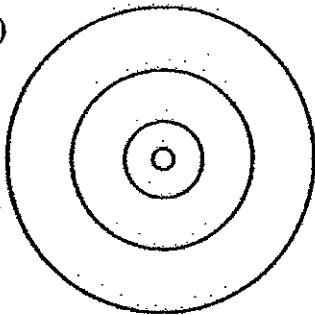


b)

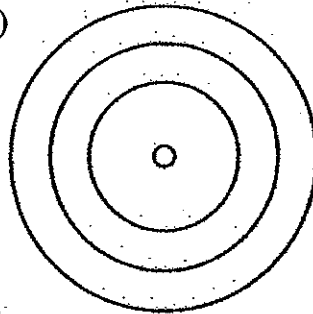


6. Choose the diagram that best represents the magnetic field around a straight current-carrying wire. Explain your choice.

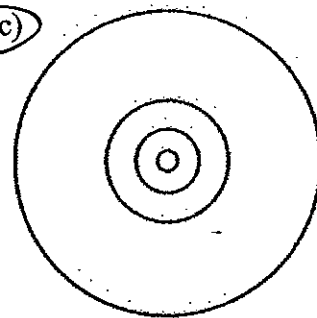
a)



b)



c)



The field should get weaker as you get farther from the wire, which means the lines should be farther apart as you go farther out.